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Copy to Communications Commission
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February 6, 1997

William F. Caton, Acting Secretary
Federal Communications Commission
Washington, D.C. 20554

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JEROLD L. JACOBS

Re: MM Docket No. 87-268
Advance Television Systems

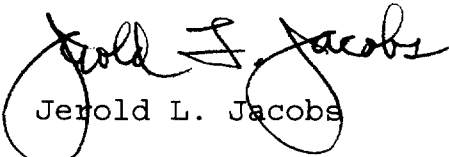
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Dear Mr. Caton:

On behalf of our client, Shockley Communications Corporation, licensee of Station WQOW-TV, Eau Claire, Wisconsin, transmitted herewith for filing are an original and nine (9) copies of its "Reply to Opposition to Request for Change of DTV Allotment for Station WEAU-TV to Avoid Interference" in the above-referenced Docket.

Please direct any communications or inquiries concerning this matter to the undersigned.

Very truly yours,


Jerold L. Jacobs

Enc.

cc: As on Certificate of Service (all w/enc.)

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

RECEIVED

FEB 6 - 1997

In the Matter of

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Federal Communications Commission
Office of Secretary

Advanced Television Systems
and Their Impact Upon the
Existing Television Broadcast
Service

MM Docket No. 87-268

TO: The Commission

**REPLY TO OPPOSITION TO
REQUEST FOR CHANGE OF DTV ALLOTMENT FOR
STATION WEAU-TV TO AVOID INTERFERENCE**

SHOCKLEY COMMUNICATIONS CORPORATION ("SCC"), licensee of Station WQOW-TV, Eau Claire, Wisconsin, by its attorneys, hereby replies to the January 27, 1997 "Opposition" by WEAU License, Inc. ("WEAU"), licensee of Station WEAU-TV, Eau Claire, Wisconsin, to SCC's "Request" that the allotment of DTV Channel 16 to Station WEAU-TV be changed to Channel 39 in the next iteration of the DTV Table of Allotments to avoid serious and unnecessary interference to Station WQOW-TV's NTSC and DTV channels. In support whereof, the following is shown:

1. Importantly, WEAU's Opposition concedes that there is interference caused to WQOW-TV by the proposed allotment of DTV Channel 16 to Station WEAU-TV. However, the Opposition also states that:

- (A) The interference is "minor," and its significance is substantially diminished by the satellite status of WQOW-TV (id. at 2, 5);
- (B) The WQOW-TV interference area is the same area in which SCC Stations WQOW-TV, WXOW-TV, and WAOW-TV overlap or are proposed to overlap in pending FCC applications. Therefore, affected viewers should be able to receive any lost programming from either WXOW-TV or WAOW-TV since all three stations provide "basically identical service" (id. at 3); and

- (C) Although WEAU does not object to changing its DTV allotment if that would eliminate interference to WQOW-TV, SCC's proposal is insufficient to establish that digital operation on Channel 39 would be a proper substitute in terms of replication of WEAU-TV's present service area (id. at 3-4).

As SCC will now demonstrate, WEAU is mistaken on all three points.

**I. The Additional Interference Caused by DTV
Channel 16 to Station WQOW-TV is Not "Minor"
And is Not Diminished by WQOW-TV's Satellite Status**

2. The centerpiece of this Reply is a "Technical Engineering Report" ("Report") (attached hereto as Exhibit 1) prepared by Mr. David A. White, the same engineering consultant who originally analyzed the proposed DTV allotments for Stations WQOW-TV and WEAU-TV in light of the draft Table of Allotments in the Sixth Further Notice of Proposed Rule Making ("Sixth Notice"), 11 FCC Rcd 10968 (1996), and the Commission's channel spacing and allocations criteria. Mr. White determined that if DTV Channel 14 is allotted to WQOW-TV and DTV Channel 16 is allotted to WEAU-TV -- as proposed in the draft Table -- significant interference will be caused to WQOW-TV's existing NTSC Channel 18 and proposed DTV Channel 14. His initial conclusions are found in the "Technical Engineering Report" attached to SCC's Request as Exhibit A and incorporated herein by reference. The Opposition does not deny that interference will occur, but it erroneously attempts to pooh-pooh the serious extent of the interference.

3. Mr. White's new Report (at 1-3) fully rebuts -- legally and technically -- WEAU's faulty assertion that the interference that would result from the allotment of DTV Channel 16 to WEAU-TV is "minor". First, Paragraph 90 of the Sixth Notice clearly states that the Commission's objective in the draft Table of Allotments is "minimizing new interference to NTSC service". 11 FCC Rcd at 11006. In this connection, WEAU incorrectly cites the

November 22, 1996 "Comments" ("Comments") of the Broadcasters Caucus ("Caucus") as supporting WEAU's contention of minor impact because, according to WEAU, the Comments continued to propose DTV Channel 16 for WEAU-TV "in spite of a specific inquiry submitted by Shockley" objecting thereto. In reality, the Comments make it abundantly clear (at 10, 27, and 47) that: (a) the Caucus favors minimizing interference to NTSC channels; (b) the Caucus' Modified Table of Allotments is superior to the Sixth Notice's draft Table because it reduces new interference to NTSC service; and (c) most importantly, the Comments did not purport to adjudicate any allotment change requests in the Modified Table; such adjudications are the sole province of a future industry committee channel coordination process that the Comments recommend. Thus, neither the Sixth Notice nor the Comments support WEAU's contention that the interference caused to WQOW-TV is "minor" or that the Commission is unconcerned about even minor interference. The Commission's clear goal in this proceeding is interference minimization, and no allowance is made in the Sixth Notice for preservation of any amount of curable interference, minor or not.

4. Second, the Report (at 1-3) elaborates on how the geographical area affected by WEAU-TV's DTV Channel 16 interference is: (a) much larger than the small pockets of either present or proposed predicted Grade B contour overlap between SCC Stations WXOW-TV, LaCrosse, Wisconsin, WAOW-TV, Wausau, Wisconsin, and WQOW-TV; and (b) has probably been underestimated because of rugged terrain, the resulting terrain shielding, and the fact that the Longley-Rice propagation model used by the Commission and the Caucus in the draft Table and Modified Table of Allotments does not adequately identify terrain-related signal interference.

5. Finally, there is no legal basis for the Opposition's view (at 2-3) that the fact that WQOW-TV is a satellite of Station WXOW-TV and that the service contours of WQOW-TV,

WAOW-TV, and WXOW-TV slightly overlap "diminishes" the significance of the projected interference caused by DTV Channel 16. In reality, satellite stations are accorded the very same degree of interference protection as full-service TV stations under Part 73 of the Commission's Rules, undoubtedly at least in part because "The Commission has encouraged licensees of ...satellite stations to increase their origination of local programming and to develop into full-service stations". See Further Notice of Proposed Rule Making in MM Docket No. 87-8 (Television Satellite Stations Review), 5 FCC Rcd 5567, 5567 ¶3 (1990). And SCC rejects the notion that WQOW-TV, WAOW-TV, and WXOW-TV provide "basically identical [program] service". Even if the three stations' programming were identical, that fact clearly would not excuse signal interference by DTV Channel 16. Hence, SCC urges that the serious DTV interference problem which it has identified here should be immediately cured, rather than allowed to linger.

II. Allotting DTV Channel 39 to WEAU-TV Completely Solves WQOW-TV's Interference Problem and Causes No New Interference

6. Next, Mr. White's Report (at 4) draws the very significant conclusions that allotting DTV Channel 39 to WEAU-TV, instead of DTV Channel 16, "solves the entire interference situation, without creating any new problems" (emphasis added). These conclusions are fully explained at pages 3-4 and 5-7 of the Report and are particularly important because the Opposition states (at 3-4) that "WEAU-TV does not object to a change in its digital allotment if such change would eliminate the interference to be received by WQOW-TV". Since SCC's proposal to change WEAU-TV's DTV allotment to Channel 39 fully accomplishes that very goal, WEAU should be taken at its word, and the Commission should immediately allot DTV Channel 39 to WEAU-TV.

III. Substitution of Channel 39 Has No Impact on Replication of Station WEAU-TV's Present Service

7. Finally, as to whether WEAU-TV can replicate its present service area using DTV Channel 39, instead of Channel 16, Mr. White's Report (at 4-5) first points out that the draft Table of Allotments calculates a required ERP of 1768.9 kilowatts to replicate WEAU-TV's present predicted Grade B coverage area, using DTV Channel 16. He then concludes, using analogous data in the draft Table for NTSC Channels 7 and 9 in the neighboring Wausau, Wisconsin TV market (which will become DTV Channels 24 and 41), that since the Commission's contour curves do not distinguish between various UHF channels, the same "replication" power level (1768.9 kW) that the Commission calculated for DTV Channel 16 would be generated for DTV Channel 39 and will replicate WEAU-TV's present service area just as well as DTV Channel 16 would.

8. In the Opposition (at 4), WEAU stated that its only concern about substituting DTV Channel 39 for Channel 16 is whether "Channel 39 would be a proper substitute for digital operation on Channel 16". SCC urges that the Report fully demonstrates that the answer is a resounding "Yes". Substituting DTV Channel 39 for DTV Channel 16 will have no adverse impact on the replication of WEAU-TV's present service area, and, therefore, there is no legitimate ground for any WEAU objection.

IV. Conclusion

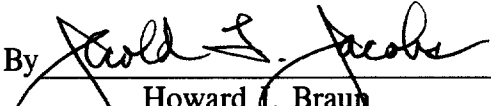
9. SCC urges that it is in the paramount public interest that the DTV Table of Allotments be perfected as much as possible when the next iteration is issued by the Commission within the coming weeks. SCC has shown above that WEAU's objections to changing its DTV allotment are neither legally nor technically sound. WEAU will fare as well using DTV Channel

39 as Channel 16, and the result will be no interference to WQOW-TV or to any other station. Thus, SCC is proposing a "win-win" DTV allotment solution, which the Commission should find especially appealing. Finally, because of the manifest technical error which produced the initial erroneous allotment of DTV Channel 16 to Station WEAU-TV, SCC urges that WEAU-TV's DTV allotment should be changed immediately to properly protect Station WQOW-TV's NTSC and DTV channels and avoid confusion as the stations prepare to implement the Table.

WHEREFORE, in light of the foregoing, SCC respectfully requests that the Commission should change the DTV allotment for Station WEAU-TV to Channel 39 when it issues the next iteration of the DTV Table of Allotments.

Respectfully submitted,

SHOCKLEY COMMUNICATIONS
CORPORATION

By 
Howard J. Braun
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Its Attorneys

Dated: February 6, 1997

TECHNICAL ENGINEERING REPORT**PURPOSE:**

On January 9, 1997, Shockley Communications filed a request with the Commission to substitute a different DTV channel for WEAU-TV in Eau Claire, Wisconsin. I supplied the technical support material for that filing. On January 27, 1997, WEAU filed an opposition to the Shockley request, based on several different points. This engineering report is intended to respond to the "technical" issues raised in the opposition by WEAU, and to further support the original Shockley request to substitute DTV channel 39 in place of channel 16, for WEAU Eau Claire, Wisconsin.

TECHNICAL RESPONSE ISSUES:**A. ADDITIONAL INTERFERENCE CAUSED BY DTV CHANNEL 16 IS NOT "MINOR":**

One of WEAU's opposition contentions was that the interference caused by the channel 16 DTV allocation was "less significant" because of WQOW's "satellite" status, and the fact that there is some grade "B" contour overlap between co-owned stations in Eau Claire, La Crosse, and Wausau (all Wisconsin). While there is some grade "B" overlap, as documented in Shockley's station modification application (file no. BPCT-960610) filed

July 2, 1996, the contour map attached as "exhibit 1" shows that only a small part of the interfered area is actually within proposed overlap locations. It should also be pointed out, that because of the rugged terrain, there are actually very few locations where both WQOW and WXOW, or both WQOW and WAOW can be received. In many cases it is a matter of which side of the hill or valley a given viewer lives on.

The rugged terrain also complicates the predictability of additional interference that is likely to occur within the grade "B" and even grade "A" signal contours of WQOW. There are many locations within the present WQOW coverage area, where the difference in received signal levels between WEAU (channel 13) and WQOW (channel 18) exceeds 30 and 40 db, due to terrain shielding. Since the WEAU transmitter site (North Latitude 44 deg. 39 min. 51 sec. and West Longitude 90 deg. 57 min. and 41 sec.) is located near the south east edge of the WQOW grade "B" contour, the WQOW and WEAU signals approach the highest population areas of the market (Eau Claire and Chippewa Falls, Wisconsin) from opposite directions. In these areas terrain shielding almost always affects just one of the two incoming signals, creating magnified signal level differences. The FCC Sixth Further Notice of Proposed Rule Making (MM

Docket No. 87-268) indicates that interference to NTSC signals from DTV signals, 2 channels removed, begins at a signal level difference of 23.73 db. When WEAU attempts to "replicate" their (316 Kw) VHF NTSC coverage with the significantly higher power (1768.9 Kw) UHF DTV signal on channel 16, this interference threshold of 23.73 db is going to occur in even more locations, than indicated on "exhibit 1". Without access to the formulas and computer program used by both the FCC and MSTV committee, it's difficult to know exactly how the interference predictions and coverage contours for DTV have been calculated, but it does appear that the "Longly-Rice point to point propagation model" (version 1.2.2, as noted in the Sixth Further Notice of Proposed Rule Making) has not adequately identified the significant amount of terrain related signal interference that is going to occur to both WQOW NTSC (channel 18) and WQOW DTV (channel 14).

B. ALTERNATE WEAU DTV ALLOCATION COMPLETELY SOLVES THE INTERFERENCE PROBLEM:

I do agree with the FCC and the MSTV committee that in some parts of the country, a certain amount of DTV interference is unavoidable because of heavy channel congestion. This is particularly troublesome in large

metropolitan areas with many existing NTSC stations in service. Eau Claire Wisconsin, however, is not one of those impossible situations. As I thoroughly documented in the January 9, 1997 filing, there is a viable solution available in the substitution of DTV channel 39 in place of channel 16 for WEAU. The change of this allocation solves the entire interference situation, without creating any new problems. This is a solution not readily available everywhere, but it is available at this location and therefor should be utilized.

C. SUBSTITUTION OF CHANNEL 39 HAS NO IMPACT ON
REPLICATION OF PRESENT WEAU SERVICE:

The objection by WEAU also questioned the viability of substitute DTV channel 39 to "replicate the present valuable local television service". There is little doubt that "replicating" its present full power "VHF" NTSC (channel 13) coverage area with a new "UHF" channel will be challenging. To accomplish this with NTSC service, on either channel 16 or 39, would require WEAU to transmit with an ERP of nearly 14,000 Kw, to maintain the same grade "B" coverage area they now serve. That's almost 3 times the current FCC limit of 5,000 Kw for UHF NTSC transmitters.

For DTV service the FCC, in the Sixth Further

Notice of Proposed Rule Making MM Docket No. 87-268, has identified 43.8 dbu, allowing for a 10db UHF antenna gain specified in the docket's "appendix A" (53.8 db) as the comparable grade "B" UHF DTV signal level. This signal level requirement is applied uniformly to all UHF channels by the FCC release. To "replicate" the present WEAU "VHF" grade "B" coverage area, the FCC curves calculated a required ERP of 1768.9 Kw. Since the FCC contour curves do not distinguish between various UHF channels, this same power level calculation would be generated for channel 16, 39, or any other UHF channel. This equal power concept is clearly shown in an adjacent television market (Wausau, Wisconsin), where two high band "VHF" (channels 7 and 9) stations sharing the same transmission antenna, with identical present grade "B" coverages have been assigned DTV channels 24 and 41 at identical power levels of 1536.3 Kw. The Commission's signal coverage formulas obviously draw no distinctions between these UHF channels. I would therefore assume that the same 1768.9 Kw output power would be authorized for WEAU at the proposed substitute DTV channel 39 allocation.

D: SUBSTITUTION OF CHANNEL 39 FOR 16 AT 1768.9 KW WILL NOT CAUSE NEW INTERFERENCE:

Without the Commission's exact computer program model for determining DTV signal coverage it's not possible to make exact calculations. But based on existing UHF contours (FCC part 73.699 figure 10b) and a DTV signal level of 53.8 dbu (identified earlier) the WEAU grade "B" signal contour will likely be approximately 120 km (74.5 miles) on either channel 16 or 39. I thoroughly documented the distance separation requirements for channel 39 in the January 9, 1997 filing, and all of those findings apply at the output power level of 1768.9 Kw. I've also applied the same calculations to the DTV co-channel assignment to WDIO in Duluth, Minnesota (North Latitude 46 deg. 47 min. 13 sec. and West Longitude 92 deg. 7 min. and 17 sec.) The WEAU and WDIO sites are 252.9 km (157.2 miles) apart, well beyond the specified 223.7 km (139 miles) identified in the Sixth Report and Order MM Docket No. 87-268. Applying the same calculations to the WDIO DTV signal, as were used for WEAU, the WDIO grade "B" contour will be 105 km (65.2 miles). With the 14 db antenna front to back ratio specified in the Sixth Report and Order (appendix A) applied, the DTV co-channel interference specification of 15.27 db is met at all locations, resulting in no co-channel interference on channel 39. The DTV channel 39 proposed for Green Bay, Wisconsin

(identified in the January 9, 1997 filing, as the nearest DTV 39 co-channel at 234.6 km) is also beyond the specified DTV co-channel space requirements. With an authorized power output of just 50 kw, that allocation will be of no concern for co-channel interference with WEAU.

SUMMARY:

I continue to support the substitution of DTV channel 39 in place of channel 16 for WEAU, Eau Claire, Wisconsin. The channel substitution will eliminate obvious interference concerns to both WQOW NTSC channel 18, and WQOW DTV channel 14, while meeting WEAU's desire to "replicate" their present coverage without creating new interference to existing NTSC stations and future DTV allocations.

ENGINEERING CERTIFICATION

As a practicing broadcast engineer with 19 years of television engineering experience and holder of an Industrial Electronics Bachelors degree, I certify that I have accurately prepared this technical engineering report. I have personally made all of the necessary calculations and either prepared, or verified the accuracy of all technical exhibits included in this report. All facts contained in this document are true based on my belief and knowledge.

 2/5/97

David A. White
Engineering Consultant
10400 Olson Drive
Eau Claire, WI 54703

phone 715-835-1881

Joyce  Notary Public

Dated: February 5, 1997

ENGINEERING EXHIBIT 1

GRADE B CONTOURS OF
WXOW-TV, WQOW-TV,
WAOW-TV AND WKOW-TV

PRES GRADE B

PROP GRADE B

WQOW

WAOW

Channel 16
interference
area

PROP GRADE B

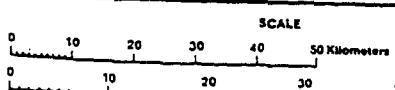
As Originally Proposed
As Proposed Herein

WXOW

PROP GRADE B

MARQUETTE

PROP WKOW



CERTIFICATE OF SERVICE

I, Maria Alvarez-Newsom, a secretary in the law offices of Rosenman & Colin LLP, do hereby certify that on this 6th day of February, 1997, I have caused to be mailed, or hand-delivered, a copy of the foregoing "Reply to Opposition to Request for Change of DTV Allotment for Station WEAU-TV to Avoid Interference" to the following:

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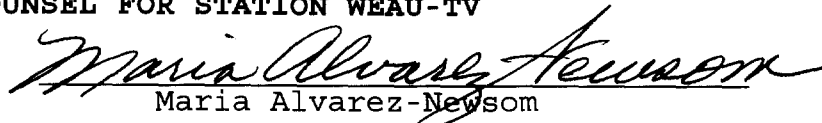
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